MISSOURI DEPARTMENT OF NATURAL RESOURCES
PO Box 250 Rolla Missouri 65401 (314) 364-1752

APR 10 1980

OTCR

SITE BIG RIVER MINE
ID# MOD981126899
BREAK 1.3
OTHER MDNR
4/3/80

asp

April 3, 1980

Dick Rankin
Executive Secretary
Clean Water Commission
P O Box 1368
Jefferson City, MO 65102

Dear Dick

Enclosed is the first report from Pete concerning our work on the St Francois County landfill at Desloge in a portion of the old St Joe Minerals, Inc tailings

It is Pete's thought as well as Tom Dean's, after his inspection, that the landfill is not the cause or likely to be the cause, of leachate increase into Big River However, Pete is most concerned about the quality of water from the well Pete ran double samples to check his results so he is confident of his findings

My thought is that routine monitering of the river with 6 month or perhaps yearly collection of samples might be in order Similarly, an examination of the landfill should be done at the same time I do suggest though that we consider the installation of a lysimeter or some other shallow monitering installation near or within the confines of the landfill This would give us early warning of potential problems and perhaps greater confidence in the use of tailings for landfill disposal I would suggest we consider doing this late summer-early fall when we may have more time here and the drilling equipment would be available We should review this with Jim Doseberg to get his thoughts

Sincerely yours,

Dr J Hadley Williams, Chief
Engineering Geology Section
Geology & Land Survey

Department of Natural Resources - Division of Geology and Land Survey

Geochemistry Lab

Desloge Landfill and Big River Pollution Geochemical Study

First Report

The location of the Desloge landfill site, in the southeastern part of the St Joe Lead Company tailings pond in section 25, T37N R 4E, (an area formed by the northerly loop of the Big River in Francois County) and their combined influence on the waters of the Big River and associated streams and wells has been under investigation for some time The present investigation relates, only to the Sanitary Landfill and its influence on the waters of the area

Dr Kovac, who carried out a preliminary investigation in this area, has strongly recommended that a thorough investigation into the possible contamination of the Big River, by the leachates from the landfill, be made The Engineering Geology Section of the Division of Geology and Land Survey was requested to examine the validity of the recommendation

The Geochemical Laboratory, therefore looked into the feas ability of such an investigation and suggested a preliminary reconnaissance, followed by river, stream, well waters and leachate sampling in and around the Desloge Landfill site and analysis of the same A reconnaissance was carried out by Tom Dean who stip ulated locations, (map) where water samples were subsequently collected Though inadequate, 100 ml samples were collected (the Mobile Laboratory provided by DNR has facilites for collecting only 100 ml filtered samples)

Five samples at locations 2,3,4,5 and 6 were filtered at site

and pH and specific conductivities were measured Two samples at locations 7 & 8 were not filtered as the Mobile laboratory had to leave for another assignment

The samples were analysed for zinc, lead and cadmium at the Geochemical laboratory The following are the concentrations of zinc, lead and cadmium

Sample #	Temp °C	Specific Conductivity microohms	pH	Zn ppb	Pb ppb	Cd ppb	Remarks
2	10	260	6 4	50	30	3	PHS - ok
3	9	460	7 3	548	48	5	PHS - ok
4	6	460	7 3	80	36	4	PHS - ok
5	10	1050	7 0	380	106	10	See below
6	11	310	6 0	23	43	2	PHS - ok
7	N O T R E C O R D E D			19	25	1	PHS - ok
8	N O T R E C O R D E D			45	28	3	PHS - ok

The above results indicate that at the present time the concentrations of zinc, lead and cadmium in the waters of the Big River and a creek, running through a tunnel, are well below the limits prescribed by the U S Public Health Standards in locations 2, 4 , 6, 7 and 8 The concentrations of the same metals in sample at location 3 are also below P H S levels, however, the concentration of lead in this sample is very near mandatory limits of the P H S

The water sample from well at location #5 has a zinc concentration of 380 ppb which is well below the P H S Lead concentration, on the other hand, is 106 ppb which is twice the mandatory limit of the P H S (50 ppb) Cadmium in the sample is 10 ppb and is just at the mandatory limit of the P H S

This location (#5) (according to Mr Tom Dean) may be tapped into a public drinking water source (mine) In view of the above, the water from this well cannot be considered to be POTABLE Immediate steps may therefore be taken to carry out more tests and, if the above results are

confirmed, suitable remedial measures taken

P Doraibabu

Supervisor - Geochemistry Laboratory